RESERVE COPY

PATENT SPECIFICATION

Convention Date (United States): Oct. 23, 1937. **520,686**

Application Date (In United Kingdom): Sept. 29, 1938. No. 28309/38.

Complete Specification Accepted: May 1, 1940.

COMPLETE SPECIFICATION

Improvements in Mechanism for the Delivery of Measured Quantities of Dough or Other Plastic Material

We, AMERICAN MACHINE & FOUNDRY COMPANY, a corporation organized and existing under the laws of the State of New Jersey, United States of America, of 511, Fifth Avenue, City and State of New York, United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to mechanism for the delivery of measured quantities of dough or other plastic material, of the kind including an annular rotor member provided with a plurality of measuring pockets or cylinders each having a member or piston movable in opposite directions therein, said rotor member being rotatable to bring said pockets in succession into communication with means for supplying plastic material under substantially constant pressure, and mechanism for controlling or effecting an inward material receiving movement of each member or piston when the pocket or cylinder thereof is in communication with said supplying means and positively effecting an outward material discharging movement of each member or piston independently of the inward movement of any other member or piston after the pocket or cylinder thereof has moved out of communication with said supplying means.

A material delivery mechanism for plastic material has been proposed, in which a rotor member was intermittently rotated to bring pockets thereof into communication with a material supplying means, and the entire inward movement of the members or pistons in said pockets was resisted by a weight acting upon a pair of connected pivoted levers disposed between diametrically opposite pistons, whereby one piston was moved inwardly and at the same time the opposite piston was moved outwardly to discharge its material, under the pressure of the entering material, acting against said weight, an additional member being provided to hold the pistons in discharge position until again brought to the supplying means. In another form of material delivery mechanism, the material was pressed by a reciprocable ram into the single pocket of a rotor member rotated at varying speed, and the piston in said pocket was connected to a dashpot to counteract the sudden action of the ram.

The object of the present invention is to provide an improved mechanism of the kind above referred to, in which the operative parts are controlled in such manner as to eliminate shocks or impacts due to sudden stoppage of moving parts or contact of such parts with other parts, and consequently to eliminate noisy operation and provide for smooth continuous operation at a satisfactory rate of speed.

The invention consists in a mechanism of the kind above referred to, in which the controlling mechanism is so formed as to hold the members or pistons in their outer discharge positions until their pockets or cylinders are brought into communication with the material supplying means, and to then permit inward movement of said members under the pressure of the material in said means, and said mechanism includes a cushioning means adapted to effect a gradual arrest of the material receiving movements of said members at the limits of such movements.

The invention also consists in that the controlling mechanism includes parts forming a cam surface or surfaces to effect the discharge movements of said members and to hold them in discharge position during partial rotation of the rotor member, and a cushioning part with which said members coact when the respective pockets are in communication with the material supplying means and which is yieldable to permit material receiving movements of said members, said cushioning part in the position in which it limits the movements of said members forming part of or directing said members into engagement with the cam surface for effecting the discharge movements of said members.

The invention further consists in a mechanism of the kind above referred to, in which a stationary controlling mechanism includes a part movable

inwardly under the pressure of material received in a pocket acting through the member or piston thereof when said pocket is in communication with the material supplying means, and means coacting with said movable part after a certain movement thereof to provide a resistance to inward movement of said part sufficient to arrest said movement gradually and without shock at a predetermined inner limit of movement.

The invention further consists in that said yieldable or movable part is returned to its normal outermost position when a member or piston moves out of coacting relation wherewith, and means are provided for cushioning or gradually arresting the outward movement of said part.

Other features of the invention subsidiary to the above will be clearly set forth in the claims appended hereto.

In the accompanying drawings:

Fig. 1 is a plan view, partly in section, of portions of a dough dividing mechanism in accordance with the present invention,

Fig. 2 is a somewhat enlarged fragmentary sectional plan view of the mechanism shown in Fig. 1, additionally showing the cam mechanism which controls the movements of the reciprocating pistons,

Fig. 3 is a view similar to that of Fig. 2 but showing the parts in different operative positions, and

Figs. 4 and 5 are detail perspective views of coacting parts of the cam mechanism.

The dough dividing mechanism partially illustrated in Fig. 1 is, generally speaking, of a known type, and essentially comprises a rotor member 2 provided with a suitable number, for example six, of radially disposed measuring cylinders or pockets 6. These cylinders, as shown, may be formed integrally with inner and outer annular walls or webs 5 and 5X of the rotor member. Within the cylinders 6 are arranged pistons 7, which are movable inwardly to permit the cylinders to be filled with dough, and are movable outwardly to discharge the measured quantities of dough from the cylinders.

The rotor member 2 is suitably mounted for continuous rotary movement about its axis, for example, said member may be mounted on a supporting table to rotate about a stationary vertical shaft supported by said table, and may be driven by a drive gear extending through an opening in the table, and meshing with a ring gear formed on or secured to the underside of the rotor member. The rotor member may be mounted on the vertical shaft by means of a central hub formed on a top plate or wall secured to or integral with the annular walls 5 and 5X to enclose and protect the controlling mechanism later described.

The dough is supplied to the measuring cylinders or pocket 6 from a suitable source of supply of dough under pressure, through one or more inlet members 1. In Fig. 1, two such inlet members are shown, arranged in diametrically opposite positions, but there may be a single member or a greater number thereof, depending upon the number of measuring cylinders and the desired capacity or output of the mechanism.

The inlet member 1, or each thereof, is of arcuate form and is provided with an inlet opening or throat 4, into communication with which the measuring cylinders 6 are brought by the rotation of the rotor member 2. The inner arcuate face 1X of the inlet member and the outer cylindrical face of the wall 5X of the rotor member are preferably machined to provide a close fit therebetween. The inlet member or members may be supported by and secured to the supporting table above referred to.

The supply of dough under pressure may be contained in one or more tanks or receptacles, the lower outlet portion or portions of which is or are connected to the inlet member or members 1 directly or by suitable connecting pipes. The receptacle, or each thereof, may have a movable follower or plate above the mass of dough contained therein, so that air or other gaseous medium introduced into the tank above said follower will press downwardly thereon and force the dough under pressure from the receptacle into the inlet opening or throat 4 of the inlet member, or each thereof. When a measuring cylinder 6 is brought into communication with the inlet throat 4, a measured quantity of dough is forced into the measuring cylinder during inward movement of the piston 7 therein, and after advancing out of communication with the inlet throat and to a convenient discharge position, for example the position indicated by the numeral 44 in Fig. 1 with respect to the upper inlet member 1, or a diametrically opposite position with respect to the lower inlet member, the measured quantity of dough is discharged by an outward movement of the piston 7. In the arrangement shown in Fig. 1, provision is made for thus filling and discharging each measuring cylinder twice during each revolution of the rotor member 2, and suitable means may be provided for receiving the discharged dough masses and delivering

the same for the desired further operations thereof.

The movements of the pistons 7 are controlled by a cam mechanism shown in Figs. 2 to 5. Each piston 7 is pivotally connected to the outer end of a piston rod 8, which at its inner end carries a cam follower 9 and is connected pivotally at 10 to the end of an arm 11 mounted on a stud 12 supported by the rotor member 2. The limit of the outward movement of the piston 7 may be determined by a screw 13 carried by the rotor member and adapted to be engaged by the arm 11, the screw being adjusted to provide a clearance between the outer end of the piston and the inner surface of the inlet member 1 sufficient to eliminate undesirable noise or shock due to engagement between the piston and inlet member.

The cam mechanism includes a cam disc 3 mounted in a stationary position concentric with the axis of rotation of the rotor member, for example, being secured by screws 28 to the supporting table above referred to. The cam disc 3 has secured thereto one or more guide blocks 18, the number of such guide blocks corresponding to the number of inlet members 1 associated with the rotor member 2. In the arrangement shown in Fig. 1, in which two inlet members are provided, there are two guide members 18 and 180 secured at diametrically opposite positions on the cam disc 3. Each guide block and the parts associated therewith are the same, and a description of one set of these parts will be sufficient.

The guide block is of approximately triangular form, as shown in Fig. 4, the outer or peripheral surface being curved to correspond and coincide with the peripheral surface or edge of the disc 3. Along a chordal line of the disc 3, the guide block is provided with a cylindrical bore which is intersected lengthwise thereof by a slot in an inner edge of the block. Within the cylindrical bore is slidably mounted the cylindrical body 15 of a cam member 14, which is provided with a peripheral extension 16 lying within and guided by the walls of the slot communicating with said bore. The body 15 of the cam member 14 is provided at its inner end with a slot 15X within which is pivotally mounted on a pin 17X an arm or strut 17. This arm or strut 17 is pressed by a spring 48 into engagement with the surface of an extension 22 formed on a cam member 25, which occupies an inner position on the cam disc 3, as shown in Figs. 2 and 3, this cam member being pivotally connected to the inner end of an arm 23, which at its outer end is mounted on a pivot 24 on the cam disc or on the second block 180. The extension 22 lies within the slot of the block 18, and its inner face engages a flat surface on the hub of the cam disc. The extension is provided with in inner curved end portion 21, and inward movement of this extension when the end 21 thereof is engaged by the strut 17 is prevented by a screw 34 threaded into a post 35 on the cam disc and engaging the cam member 25.

The cam member 14 is normally held in its outermost position shown in Fig. 2, by a spring 29 connected to a pin 33 on the block 18 and to a headed pin 19 secured to the body 15 of the cam member 14 and movable within a slot 20 in the block 18. In this position of the cam member 14, its peripheral surface 14X constitutes a continuation of the circularly curved surface of the block 18, and when the cam member is in its innermost position, as shown in Fig. 3, the surfaces of the cam members 14 and 25 and arm 23 constitute a substantially continuous cam surface of increasing radius, eventually merging adjacent the pivot 24 into the peripheral surface of the cam disc 3 or of the second block 180. The cam member 25 is provided adjacent the extension 22 with a recess 26 to receive the extension 16 of the cam member 14 when the latter is in its inner position, the recess preferably being of a depth sufficiently greater than the thickness of the extension 16 that contact of the extension with the bottom of the recess is avoided when the cam member is moved into its innermost position to avoid noise or shock which would otherwise result.

When one of the cylinders 6 approaches the inlet throat 4, the corresponding cam follower 9 will be riding upon the peripheral surface of the guide block 18, the piston 7 thereby being held in its outermost position, and as the cylinder comes into communication with the inlet throat, the follower will be riding upon the cam member 14 which is held by the spring 29 in its outermost position. The pressure of the dough entering the cylinder from the throat 4 will force the piston 7 inwardly, and the cam follower 9 will move the cam member 14 inwardly into the position shown in Fig. 3. As the cam member is moved inwardly, the strut 17 will ride along the surface 27 of the extension 22 of the cam member 25, and eventually will ride on to the curved surface of the inner end 21 of said extension, this curved surface moving the strut 17 outwardly against the pressure of the spring 48. This provides a resistance or cushioning effect which

increases as the member or piston approaches the limit of its inward movement, thereby gradually and quietly stopping the inward movement of the cam member and piston. This tends to eliminate shock and noisy operation. The end 21 of the extension 22 finally arrests the movement of the strut 17, cam member 14 and piston 7 in the positions shown in Fig. 3, in which the surface of the cam member 25 forms a continuation of the surface 14X of the cam member 14. By adjustment of the screw 34, the position of the cam member 25 and its extension 22 may be varied, in order to correspondingly vary the inner position of the piston 7 and the capacity of the measuring cylinder 6. As the member 25 forms part of the means including the arm 23 for effecting the discharge movements of the piston, and the extension 22 forms part of the cushioning means, this adjustment does not disturb the normal relation between said means.

As the rotor member continues to travel, the cam follower 9 rides along the cam surface provided by the cam members 14 and 25 and the arm 23, which causes the piston 7 to be moved outwardly again to discharge the measured quantity of dough at the position 44 indicated in Fig. 1. If only a single inlet member 1 is provided, the cam follower 9 will ride from the surface of the arm 23 on to the circular periphery of the cam disc 3, so that the piston 7 will be held in its outermost position until the cam follower again passes on to the surface of the guide block 18 and thence on to the surface of the cam member 14 as above described. If a pair of inlet members 1 are provided, as shown in Fig. 1, the cam follower 9 will pass from the surface of the arm 23 on to the surface of the second guide block 180, and will be riding on the surface of the cam member 14 of this block at the time the cylinder 6 comes into communication with the inlet throat of the second inlet member. The piston 7 will thus again be moved inwardly together with the cam member 14, as the cylinder receives another measured quantity of dough from the second inlet throat, and will be again moved outwardly as the cam follower travels along the cam surface formed by the cam members 14 and 25 and the arm 23 associated with the second guide block 180, to discharge the second measured quantity of dough. The cam follower 9 then passes from the surface of the second arm 23 on to the surface of the guide block 18, so that the operations above described will be repeated as the cylinder again comes into communication with the inlet throat of the first inlet member. It will of course be understood that the operations described will occur with respect to each of the several cylinders and pistons as the cylinders come in succession into communication with the inlet throat or throats of the inlet member or members.

As each cam follower 9 passes from the surface of the cam member 14, or each thereof, the cam member will be returned to its outermost position by the spring 29. During this movement, the head of the pin 19 travels along the surface 30X of an arm 30 pivoted on the guide block 18 or 180 and pressed inwardly by a spring 31 arranged in a socket on the guide block. The free end of this arm 30 is curved inwardly, and the engagement of the pin 19 with the curved portion of the spring pressed arm tends to arrest the outward movement of the cam member gradually and quietly in order to avoid shock or noisy operation.

The timing of the operation of the pistons 7 may be varied by rotational adjustment of the cam disc 3, for example, by providing arcuate slots in said disc for the reception of the screws 28, which may be loosened to permit turning of the disc and tightened to hold the disc securely in adjusted position. The cushioning means 17, 22 has the same cushioning effect in all adjusted positions of said cam disc.

It will thus be seen that measured quantities of dough may be received by and discharged from each of the cylinders 6, one or more times during each rotation of the rotor member 2, and that the amount of dough in such measured quantities may be determined by adjustment of the cam member or members 25 and the extensions thereof. Also that the mechanism will operate positively and accurately in the reception and delivery of the dough quantities, but without shock or noise.

Although the mechanism has been described as a mechanism for the delivery of dough-masses for use in the making of rolls, loaves of bread or the like, it will be understood that the mechanism is also capable of use in the delivery of measured quantities or masses of other plastic materials.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. Mechanism of the kind hereinbefore referred to for the delivery of measured quantities of dough or other plastic material, in which the controlling mechanism is so formed as to hold the members or pistons in their outer

discharge positions until their pockets or cylinders are brought into communication with the material supplying means, and to then permit inward movement of said members under the pressure of the material in said means, and said mechanism includes a cushioning means adapted to effect a gradual arrest of the material receiving movements of said members at the limits of such movement.

2. Mechanism as claimed in Claim 1, wherein the cushioning means is effective after a material substantially unrestricted movement of each member or piston to provide a resistance which increases as the member or piston approaches the limit of its material receiving movement.

3. Mechanism as claimed in Claim 1 or 2, wherein the cushioning means is arranged to first retard and then positively limit the material receiving movements of the members or pistons.

4. Mechanism as claimed in Claim 1, 2 or 3, wherein the cushioning means is adjustable to vary the extent of the material receiving movements of said members and the capacity of the measuring pockets.

5. Mechanism as claimed in any of the preceding claims, wherein the controlling mechanism includes means for effecting the discharge movements of said members which is adjustable relatively to the rotor member, without varying the normal relation between said discharge effecting means and the cushioning means.

6. Mechanism as claimed in any of the preceding claims wherein the controlling mechanism includes a cam means for effecting the discharge movements of the members or pistons, and the cushioning means is arranged to take up the shock of the material receiving movements of said members while maintaining coacting relation of said members with the active track portion of said cam means.

7. Mechanism as claimed in Claim 6, wherein the cushioning means constitutes a part of said cam means.

8. Mechanism as claimed in Claim 6 or 7, wherein the cam means is adjustable relatively to the rotor member for timing purposes, the cushioning means having the same cushioning effect in all adjusted positions of said cam means.

9. Mechanism as claimed in Claim 6, 7 or 8 wherein the controlling mechanism includes parts forming a cam surface or surfaces to effect the discharge movements of said members and to hold them in discharge position during partial rotation of the rotor member, and a cushioning part with which said members coact when the respective pockets are in communication with the material supplying means and which is yieldable to permit material receiving movements of said members, said cushioning part in the position in which it limits the movements of said members forming part of or directing said members into engagement with the cam surface for effecting the discharge movements of said members.

10. Mechanism as claimed in Claim 9, wherein the controlling mechanism comprises a disc having a peripheral surface for holding the members or pistons in discharge position, and an eccentric cam surface merging into said peripheral surface for effecting the discharge movements of said members, and the yieldable part has a surface normally registering with the peripheral surface of the disc and which at the limit of the yielding movement of said part registers with said eccentric cam surface.

11. Mechanism as claimed in Claim 9 or 10, wherein the yieldable part is returned into its normal position by a spring after disengagement of a member or piston therefrom.

12. Mechanism as claimed in Claim 9, 10 or 11, wherein the controlling mechanism includes a guide block the surface of which forms part of the surface for holding the members or pistons in discharge position, and which is provided with a cylindrical bore, and the yieldable part comprises a cylindrical block slidably mounted within said bore and having an outer surface normally coinciding with the surface of said guide block.

13. Mechanism as claimed in Claim 12, wherein the yieldable part at the outer end thereof is provided with a curved extension extending in the direction of movement of the rotor member and which is guided in a slot in said guide block communicating with the cylindrcal bore thereof, said extension in the innermost position of the yieldable part preferably engaging a recess in a part forming the cam surface for effecting the discharge movements of said members or pistons.

14. Mechanism as claimed in any of Claims 9 to 13, wherein the yieldable part coacts with a stationary part of the controlling mechanism to provide the cushioning effect and to limit the movement of said yieldable part.

15. Mechanism as claimed in Claim 14, wherein said stationary part is adjustable in position to vary the extent of the material receiving movements of the members or pistons.

16. Mechanism as claimed in Claim 15, wherein the surface of said stationary part and the surface of an arm pivoted on the controlling mechanism and pivotally connected to said stationary part, form a cam

surface of increasing radius for effecting the discharge movement of the members or pistons, said cam surface in all adjusted positions of said stationary part merging adjacent to the pivot of said arm into the peripheral surface of said controlling mechanism which holds the members or pistons in discharge position.

17. Mechanism as claimed in Claim 14, 15 or 16, wherein the stationary part is provided with a curved surface adapted to be engaged by a pivoted spring-pressed strut on the yieldable part, the engagement of said strut with said curved surface causing movement of said strut against the action of its spring to provide a resistance to movement of said yieldable part.

18. Mechanism as claimed in Claim 10, wherein the cam disc is secured to a stationary support by screws passing through curved slots in said disc, to permit rotational adjustment of said disc with respect to the rotor member.

19. Mechanism of the kind hereinbefore referred to for the delivery of measured quantities of dough or other plastic material, in which a stationary controlling mechanism includes a part movable inwardly under the pressure of material received in a pocket acting through the member or piston thereof when said pocket is in communication with the material supplying means, and means coacting with said movable part after a certain movement thereof to provide a resistance to inward movement of said part sufficient to arrest said movement gradually and without shock at a predetermined inner limit of movement.

20. Mechanism as claimed in Claim 9 or 19, wherein said yieldable or movable part is returned to its normal outermost position when a member or piston moves out of co-acting relation wherewith, and means are provided for cushioning or gradually arresting the outward movement of said part.

21. Mechanism as claimed in Claim 20, wherein the yieldable or movable part is provided with a projection adapted to coact with the curved surface of a member mounted on the controlling mechanism to gradually arrest the outward movement of said yieldable or movable part.

22. Mechanism as claimed in any of the preceding claims, wherein means are provided for positively limiting the discharge movements of the members or pistons, said means preferably being adjustable.

23. Mechanism as claimed in any of the preceding claims, wherein a plurality of material supplying means are provided, into communication with which each pocket or cylinder is brought in succession during each rotation of the rotor member, and a corresponding number of controlling mechanisms are provided, each of which is adapted to control the movements of the members or pistons with respect to a corresponding one of said material supplying means.

24. Mechanism as claimed in Claim 23, wherein the controlling mechanisms are adjustable independently of each other to vary the inward movements of the members or pistons while in communication with the corresponding material supplying means.

25. Mechanism for the delivery of measured quantities of dough or other plastic material, constructed, arranged and operating substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 29th day of September, 1938.

MARKS & CLERK.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1940.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

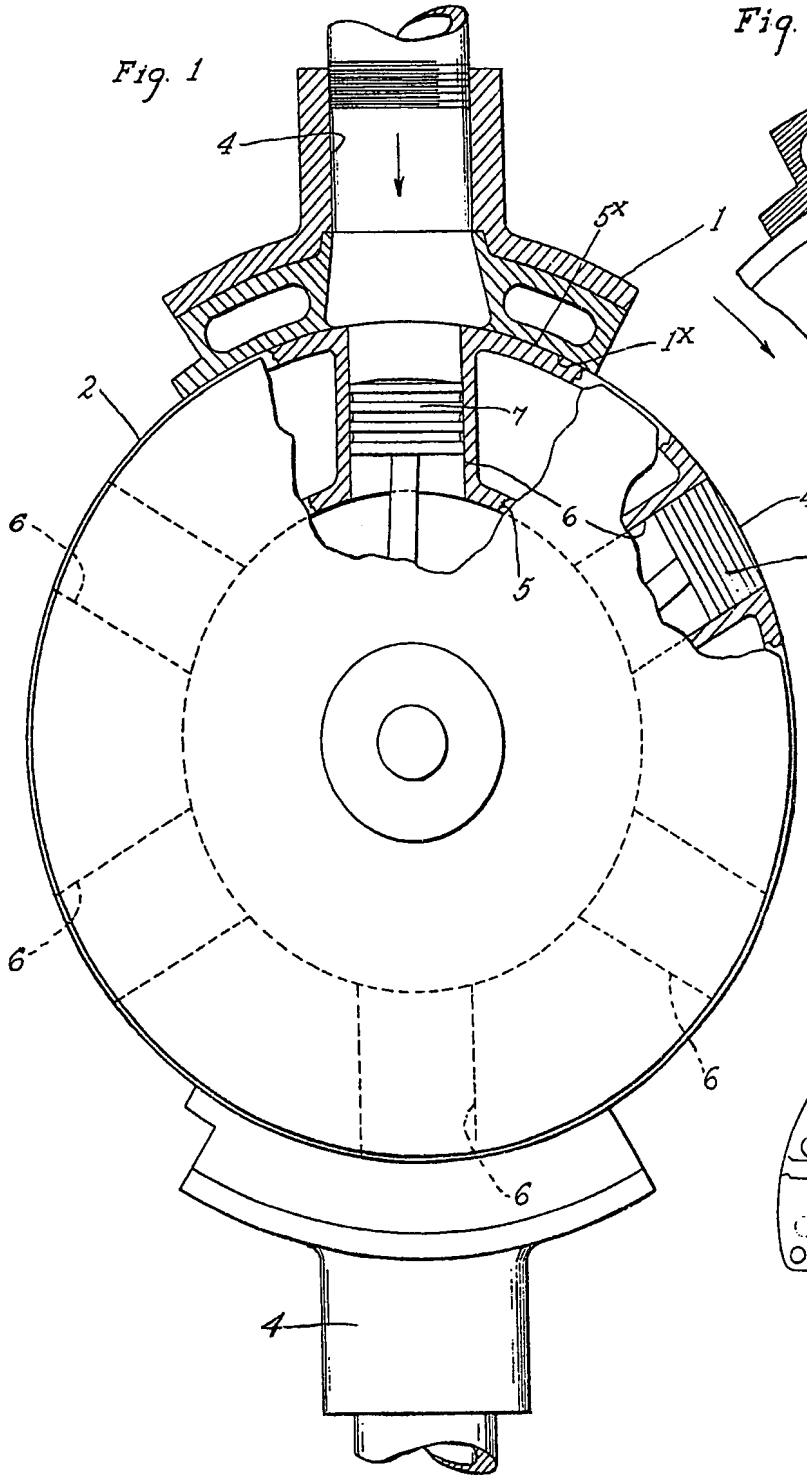


Fig. 3

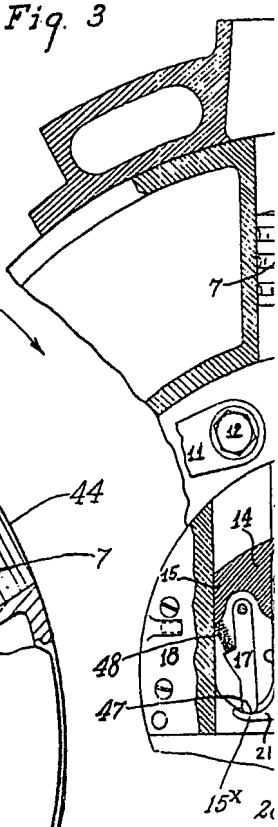


Fig. 4

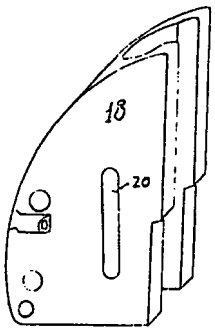


Fig. 3

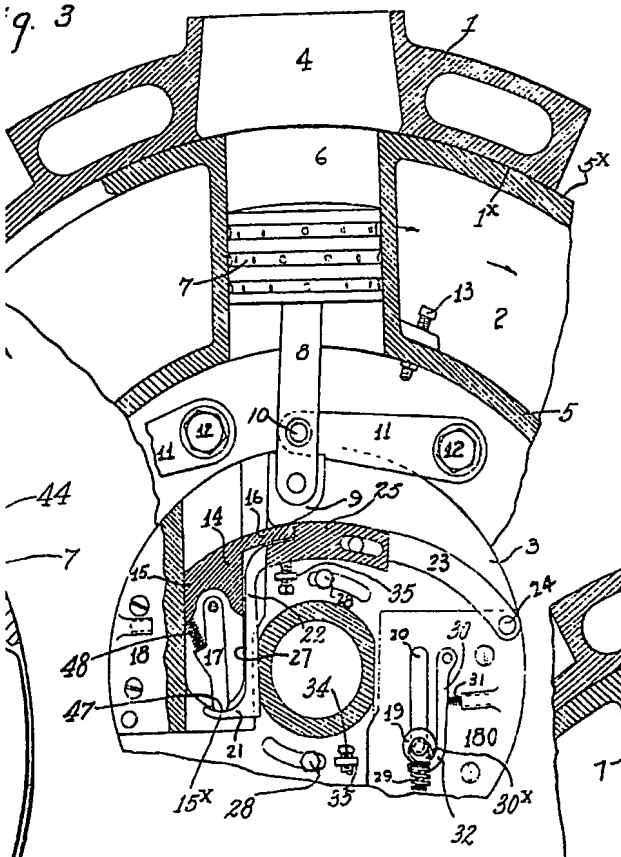


Fig. 2

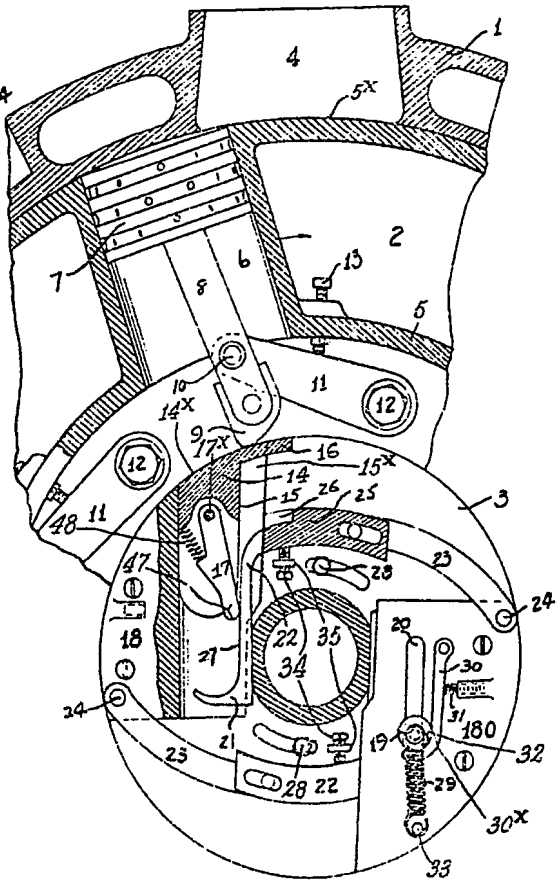


Fig. 4

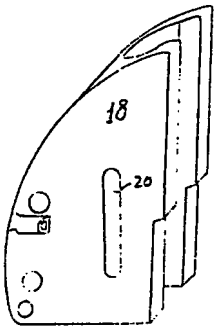
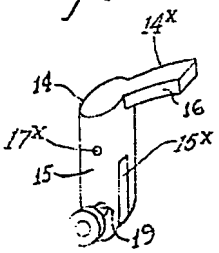


Fig 5

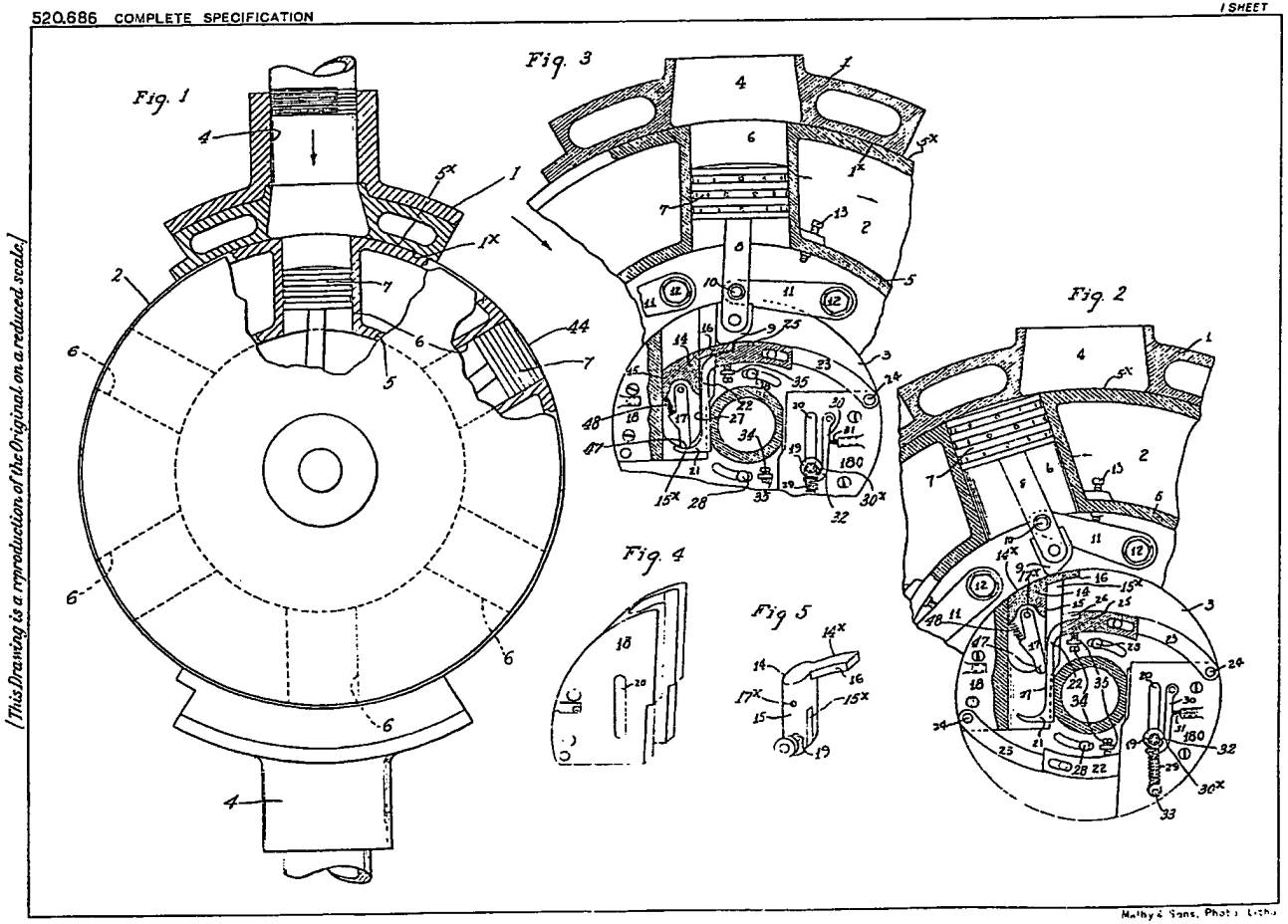


Melby & Sons, Photo-Litho

520,686 COMPLETE SPECIFICATION

1 SHEET

[This Drawing is a reproduction of the Original on a reduced scale.]



Malby & Sons, Photo-Litho.

The invention concerns a simplification at rack machines with cam controlled, circulating Messzylindern for powdery and/or. granular property.

Admits is such Abmessvorrichtungen with circulating pistons, which are steered by curve carriers. They have the lack that the adjusting organ for the amount of filling rotates continuously and during the enterprise badly to be served is. The soils of their measuring cups sit at swinging levers, which makes the production more difficult of in a circle arranged measuring cup wall much. Since each measuring cup is provided with a special lever system, this design becomes quite expensive, if at the extent of the dosing drum a larger number of measuring cups is to be accommodated.

In order to arrange the Abmesseinrichtung simpler, is suggested according to invention planning the aspirating movement of the pistons shifting in radial direction by a curve finger adjustable of a curve carrier. Appropriately the curve carrier and the curve finger basic disk sitting on the drum axle by a teeth are coupled with one another and by a nut/mother, screw od. such. held together.

This mechanism is characterised not only by a simple, clear, compact building, but offers also the possibility, the rate of admission, D. h. to change the measured filling material quantity during the enterprise at standing adjusting organs at will.

With a remark example RTI <ID=1.1 fig.> shows. 1< /RTI> the device in the opinion; Fig. 2 is the side view drawn to the half on average, and with fig. the disk is for adjustment the piston stroke shown 3.

After fig. 2 the RTI ID=1.2 Füü /RTI becomes <from> the hopper< I> well 23 by the pistons 4, which move in the Abmesszylindern 2, sucked in. The pistons 4 are accommodated in the circulating drum 3. They are provided with roles of 5, which by the curve guidance 6 and 7 moves the pistons 4 back and forth. The pistons slide under the pressure of the coil springs <RTI ID=1.3> 2I< /RTI> in the carriage guides 20.

The cam 6 of the curve guidance causes a discharging of the filling material, like powders and. such, from the Abmesszylinder 2 and the curves finger 7 aspirating the powder in the Abmesszylinder 2. On the drum axle 2 the curve owner 8, that sits with the pin <RTI ID=1.4> 10< /RTI> against twist is secured. The curve guidance 6 is screwed and the curve finger 7 at the curve owner 8 swivelling stored onto the curve owner 8. The curve finger 7 has a lever-like extension RTI ID=1.5 II <, /RTI> at the other< end> the one pin <RTI ID=1.6> 12< /RTI> , that carries RTI ID=1.7 I3 </RTI in>< the slot> the adjusting washer <RTI ID=1.8> 14< /RTI> slides; by tricks of this disk the curve finger 7 is swung out and thus the stroke of the pistons 4 and with it is changed the measured filling material quantity. The rate of admission becomes with the scale <RTI ID=1.9> 15< /RTI> adjusted. By attitude of the scale after <RTI ID=1.10> +< /RTI> or <RTI ID=1.11> -< /RTI> increased and/or. is reduced the measured filling material quantity.

After loosening of the nut/mother <RTI ID=1.12> I6< /RTI> becomes the locating disk <RTI ID=1.13> 14< /RTI> from its teeth <RTI ID=1.14> I7< /RTI> lifted out, the filling quantity accordingly to the left or right turned and by screwing the nut/mother <RTI on ID=1.15> I6< /RTI> connected with the drum axle g again firmly. The measuring cylinder drum 3 is fastened to the socket 22, which turns on the drum axle 9.

In the lower cylinder position the powder mass RTI <ID=1.16 becomes> 19< /RTI> from the Abmesszylinder 2 out-pushed and packing course /RTI arrives at <the sequential> RTI< ID=1.17> I8, with which it is wrapped.

<RTI ID=1.18> PATENTANSPROCHE< /RTI>
I. Device at rack machines also around current, in radial direction adjustable
Abmesskolben, those by one on the Messzylinder axle sitting curve carrier with adjustable
Stroke to be steered, by the fact characterized that the aspirating movement of the pistons is steered by one of the curve carrier (I4) adjustable curves finger (7).

2. Device according to requirement I, by the fact characterized that <the RTI ID=1.19> curve carrier< /RTI> (I4) and the I (more urvenfinger (7) basic, on that
Drum axle sitting owners (8) by teething (I7) coupled screw with one another are and by a nut/mother (I6), od. such. will SAM-mix-hold.